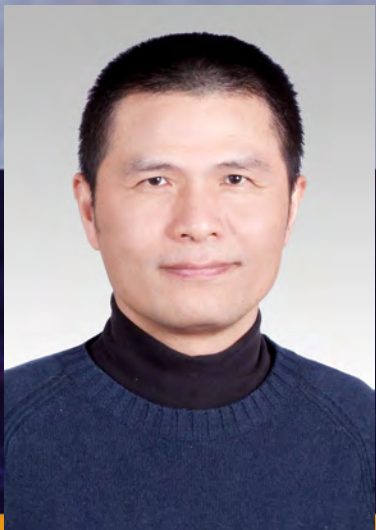


PolyU 85th and AMA 50th Anniversary Distinguished Lecture Series

High Order Numerical Methods for Hyperbolic Equations



Professor Chi-wang Shu
Brown University, USA

Abstract

Hyperbolic equations are used extensively in applications including fluid dynamics, astrophysics, electro-magnetism, semi-conductor devices, and biological sciences. High order accurate numerical methods are efficient for solving such partial differential equations, however they are difficult to design because solutions may contain discontinuities. In this talk we will survey several types of high order numerical methods for such problems, including weighted essentially non-oscillatory (WENO) finite difference and finite volume methods, discontinuous Galerkin finite element methods, and spectral methods. We will discuss essential ingredients, properties and relative advantages of each method, and provide comparisons among these methods. Recent development and applications of these methods will also be discussed.

Biography

Chi-Wang Shu obtained his BS degree from the University of Science and Technology of China in 1982 and his PhD degree from UCLA in 1986. He has been at Brown University since 1987, where he was the Chair of the Division of Applied Mathematics between 1999 and 2005, and is now the Theodore B. Stowell University Professor of Applied Mathematics. His research interest includes high order numerical methods for solving hyperbolic and other convection dominated PDEs, with applications in CFD and other areas. He is the Chief Editor of Journal of Scientific Computing and of Communications on Applied Mathematics and Computation, and serves in the editorial boards of several other journals including Journal of Computational Physics. He is a SIAM Fellow, an AMS Fellow and an AWM Fellow, and received the First Feng Kang Prize of Scientific Computing in 1995, the SIAM/ACM Prize in Computational Science and Engineering in 2007, and the SIAM John von Neumann Prize in 2021.

ALL ARE WELCOME

Date : 2 March 2022 (Wednesday)
Time : 10:00am -11:00am
Mode of delivery : Online via Zoom
Meeting link : <https://polyu.hk/xfWFA>
Meeting ID : 938 5576 0578
Passcode : 0302

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